

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

62. (Previously presented) An improved arrangement of a corn head row unit comprising:

- a. a source of power for rotation;
- b. at least one stalk roll for engagement with a corn plant stalk;
- c. at least one flute affixed to said at least one stalk roll wherein said at least one flute protrudes radially from said at least one stalk roll and extends along an axial portion of said at least one stalk roll, and wherein said axial portion of said at least stalk roll from which said at least one flute extends is defined as an exposed fluted area;
- d. at least one stripper plate arranged above said at least one stalk roll;
- e. at least one gathering chain having a plurality of paddles affixed thereto, wherein said at least one gathering chain cooperates with a first and second sprocket and wherein said first sprocket is a drive sprocket and said second sprocket is a coast sprocket;
- f. a gearbox fixing the rotational speed of said gathering chain drive sprocket and the rotational speed of said at least one stalk roll during operation, wherein a rate at which said corn plant stalk is vertically (with respect to said corn head row unit) consumed by said at least one stalk roll is defined as the ear separation vertical velocity, wherein said resulting ear separation vertical velocity is selected from 6 to 13 miles per hour for minimal damage to an ear of corn upon impact with said at least one stripper plate; and,

- g. wherein a distance said at least one flute radially extends from said at least one stalk roll, a diameter of said at least one stalk roll, a size of said gathering chain drive sprocket, said gearbox, and the length of said exposed fluted area are chosen so that at least one stalk roll is capable of consuming at least sixty inches of a corn plant stalk during the travel of one of said plurality of paddles along said exposed fluted area.
63. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 further defined as having two opposing stalk rolls for engagement with said corn plant stalk.
64. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein the length of said exposed fluted area has been selected to increase the horizontal distance said corn plant is able to travel before said corn plant is exposed to a shearing position so that the amount of said corn plant stalk vertically consumed by said at least one stalk roll per length of said exposed fluted area is arranged so that substantially all ears of corn connected to said corn plant impact said at least one stripper plate prior to shearing of said corn plant to minimize stalk shear.
65. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein the size of said gathering chain drive sprocket size has been selected to decrease the linear horizontal speed of said plurality of paddles.
66. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 65 wherein said gathering chain drive sprocket has less than eight teeth and said coast sprocket has eight or more teeth.

67. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 65 wherein said gathering chain drive sprocket has less than ten teeth and said coast sprocket has eight or more teeth.
68. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein said diameter of said at least one stalk roll has been selected to be in the range of three and one half to five inches.
69. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein said distance said at least one flute radially extends from said at least one stalk roll has been selected to be in the range of one-sixteenth of an inch to two inches.
70. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein the length of said exposed fluted area has been selected to increase the horizontal distance said corn plant is able to travel before said corn plant is exposed to a shearing position so that the amount of said corn plant stalk vertically consumed by said at least one stalk roll per length of said exposed fluted area is arranged so that substantially all ears of corn connected to said corn plant impact said at least one stripper plate prior to shearing of said corn plant to minimize stalk shear.
71. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 70 wherein said exposed fluted area is greater than seventeen inches.
72. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein the size of said gathering chain drive sprocket size has been selected to decrease the linear horizontal speed of said plurality of paddles.

73. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 72 wherein said gathering chain drive sprocket has less than eight teeth and said coast sprocket has eight or more teeth.
74. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 72 wherein said gathering chain drive sprocket has less than ten teeth and said coast sprocket has eight or more teeth.
75. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein said diameter of said two opposing stalk rolls has been selected to be in the range of three and one half to five inches.
76. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein said distance said at least one flute radially extends from each of said opposing stalk rolls has been selected to be in the range of one-sixteenth of an inch to two inches.
77. (Previously presented) An improved arrangement of a corn head row unit as set forth in claim 62 wherein said corn head row unit has a shear point with a rounded edge.
78. (Previously presented) An improved arrangement of a corn head row unit as set forth in claim 63 wherein said corn head row unit has a shear point with a rounded edge.
79. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 77 wherein said shear point is removable allowing for replacement.
80. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 78 wherein said shear point is removable allowing for replacement.

81. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein internal gearing of said gear box has been selected to decrease the linear horizontal speed of said plurality of paddles with respect to said ear separation vertical velocity.
82. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein internal gearing of said gear box has been selected to decrease the linear horizontal speed of said plurality paddles with respect to said ear separation vertical velocity.
83. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 62 wherein the internal gearing of said gear box, distance said at least one flute radially extends from said at least one stalk roll, said diameter of said at least one stalk roll, the length of said exposed fluted area, and the size of said gathering chain drive sprocket are manipulated alone or in conjunction so that at least one stalk roll is capable of consuming at least sixty inches of a corn plant stalk during the travel of one of said plurality of paddles along said exposed fluted area.
84. (Previously presented) The improved arrangement of a corn head row unit as set forth in claim 63 wherein the internal gearing of said gear box, distance said at least one flute radially extends from said two opposing stalk rolls, said diameter of each of said two opposing stalk rolls, the length of said exposed fluted area, and the size of said gathering chain drive sprocket are manipulated alone or in conjunction so that said two opposing stalk rolls are capable of consuming at least sixty inches of a corn plant stalk during the travel of one of said plurality of paddles along said exposed fluted area.
85. (Previously presented) An improved arrangement of a corn head row unit comprising:

- a. an engaging means for engaging a corn plant with a plurality of rotational elements;
- b. a pinching means for pinching said corn plant between said plurality of rotational elements;
- c. a pulling means for pulling said corn plant down with said plurality of rotational elements;
- d. a separation means for separating an ear of corn from said corn plant, wherein the rate at which said corn plant is vertically (with respect to the corn head row unit) consumed by said plurality of rotational elements is between 6 and 13 miles per hour for minimal damage to said ear of corn upon impact with said separation means;
- e. a horizontal movement means for engaging said ear of corn for horizontal (with respect to said corn head row unit) movement to an ear collection means and further processing within the threshing unit of a harvesting processor;
- f. a power source for said engaging means, pinching means, pulling means and horizontal movement means wherein the relative speed of said engaging means, pinching means, pulling means and horizontal movement means is fixed during operation; and,
- g. wherein said pinching means, pulling means, horizontal movement means, plurality of rotational elements, and said power source are arranged so that said pulling means is capable of moving sixty inches of a corn plant stalk through said separation means prior to said horizontal movement means traveling the length of said pinching means.

86. (New) An improved arrangement of a corn head row unit comprising:

- a. a source of power for rotation;
- b. at least one stalk roll for engagement with a corn plant stalk;

- c. at least one flute affixed to said at least one stalk roll wherein said at least one flute protrudes radially from said at least one stalk roll and extends along an axial portion of said at least one stalk roll, and wherein said axial portion of said at least stalk roll from which said at least one flute extends is defined as an exposed fluted area;
- d. at least one stripper plate arranged above said at least one stalk roll;
- e. at least one gathering chain having a plurality of paddles affixed thereto, wherein said at least one gathering chain cooperates with a first and second sprocket and wherein said first sprocket is a drive sprocket and said second sprocket is a coast sprocket;
- f. a gearbox fixing the rotational speed of said gathering chain drive sprocket and the rotational speed of said at least one stalk roll during operation, wherein a rate at which said corn plant stalk is vertically (with respect to said corn head row unit) consumed by said at least one stalk roll is defined as the ear separation vertical velocity, wherein said resulting ear separation vertical velocity is selected from 6 to 13 miles per hour for minimal damage to an ear of corn upon impact with said at least one stripper plate; and,
- g. wherein a distance said at least one flute radially extends from said at least one stalk roll, a diameter of said at least one stalk roll, a size of said gathering chain drive sprocket, said gearbox, and the length of said exposed fluted area are chosen so that at least one stalk roll is capable of consuming at least sixty-five inches of a corn plant stalk during the travel of one of said plurality of paddles along said exposed fluted area.